

CLAIMS

What is claimed is:

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1. A method for performing conditional reads of a retirement payload array in a microprocessor, said method comprising:

receiving a clock signal, said clock signal having
10 a first or "A" phase and a second or "B" phase;

receiving an advance pointer signal, said advance pointer signal having a first or inactive phase and a second or active phase, said second or active phase of said advance pointer signal corresponding to a shift in
15 position of a read pointer of said retirement payload array;

initiating a read of said retirement payload array only when, both:

said clock signal is in said "B" phase;
20 and said advance pointer signal is in said active phase.

2. The method of Claim 1, wherein;
said retirement payload array comprises M rows of
25 memory cells and N columns of memory cells.

3. The method of Claim 2, wherein;

said retirement payload array comprises M read word lines and N read bit lines, further wherein;

each of said N read bit lines is coupled to a corresponding pre-charge device and a corresponding
5 sensing device.

4. The method of Claim 3, wherein
said pre-charge devices are pre-charged when said
10 clock signal is in said first or "A" phase.

5. The method of Claim 4, wherein;
each of said pre-charge devices is a transistor
15 and each of said sensing devices is a latch.

6. The method of Claim 5, wherein;
said number of rows M is equal to 16 and said
20 number of columns N is equal to 192 such that said retirement payload array is a 192 column and 16 row retirement payload array.

25 7. The method of Claim 5, wherein;
said retirement payload array is a 192 column, 16-read word line register file structure employing a dynamic, full swing pull down read mechanism.

8. A method for performing conditional reads of a retirement payload array in a microprocessor, said method comprising:

- providing a retirement payload array, said
 - 5 retirement payload array comprising M rows of memory cells and N columns of memory cells; said retirement payload array further comprising M read word lines and N read bit lines, wherein, each of said N read bit lines is coupled to a corresponding pre-charge device
 - 10 and a corresponding sensing device;
 - coupling a clock signal to said retirement payload array, said clock signal having a first or "A" phase and a second or "B" phase; wherein said pre-charge devices are pre-charged when said clock signal is in
 - 15 said first or "A" phase;
 - coupling an advance pointer signal to said retirement payload array, said advance pointer signal having a first or inactive phase and a second or active phase, said second or active phase of said advance
 - 20 pointer signal corresponding to a shift in position of a read pointer of said retirement payload array;
 - initiating a read of said retirement payload array only when, both:
 - said clock signal is in said "B" phase; and
 - 25 said advance pointer signal is in said active phase.

9. The method of Claim 8, wherein;

said number of rows M is equal to 16 and said
number of columns N is equal to 192 such that said
retirement payload array is a 192 column and 16 row
5 retirement payload array.

10. The method of Claim 8, wherein;

said retirement payload array is a 192 column, 16-
10 read word line register file structure employing a
dynamic, full swing pull down read mechanism.

11. A retirement payload array comprised of
15 modified column structures, each of said modified
column structures comprising:

a read bit line;
a pre-charge device coupled to said read bit line;
a sensing device coupled to said read bit line;
20 at least one memory cell, said memory cell
comprising an output coupled to said read bit line and
an input;

a gate, said gate comprising an output coupled to
said input of said at least one memory cell and an
25 input;

a conditional read circuit, said conditional read
circuit comprising a first input, a second input and an

output, said conditional read circuit output being coupled to said input of said gate,

a clock signal, said clock signal having a first or "A" phase and a second or "B" phase, said clock
5 signal being coupled to said second input of said conditional read circuit;

an advance pointer signal, said advance pointer signal having a first or inactive phase and a second or active phase, said second or active phase of said
10 advance pointer signal corresponding to a shift in position of a read pointer, said advance pointer signal being coupled to said first input of said conditional read circuit, wherein;

said conditional read circuit initiates a read of
15 said retirement payload array only when, both:
said clock signal is in said "B" phase; and
said advance pointer signal is in said active phase.

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12. The retirement payload array of Claim 11, wherein;

said retirement payload array comprises M rows of memory cells and N of said column structures.

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13. The retirement payload array of Claim 12, wherein;

said retirement payload array comprises M read word lines and N read bit lines, further wherein;

each of said N read bit lines is coupled to a corresponding pre-charge device and a corresponding sensing device.

14. The retirement payload array of Claim 13, wherein

said pre-charge devices are pre-charged when said clock signal is in said first or "A" phase.

15. The retirement payload array of Claim 14, wherein;

each of said pre-charge devices is a transistor and each of said sensing devices is a latch.

16. The retirement payload array of Claim 11, wherein;

said gate is a NOR-Gate comprising a first input, a second input and an output, further wherein;

said conditional read circuit comprises:
an inverter, said inverter having an input and an output; and

a NAND-Gate having a first input, a second input, and an output, wherein;

said inverter input is coupled to said clock signal and said inverter output is coupled to said NAND-Gate second input, further wherein;

said NAND-Gate first input is coupled to said
5 advance pointer signal and said NAND-Gate output is coupled to said NOR-Gate first input.

17. The retirement payload array of Claim 16,
10 wherein;

said retirement payload array comprises M rows of memory cells and N of said column structures.

18. The retirement payload array of Claim 17,
15 wherein;

said retirement payload array comprises M read word lines and N read bit lines, further wherein;

each of said N read bit lines is coupled to a
20 corresponding pre-charge device and a corresponding sensing device.

19. The retirement payload array of Claim 18,
25 wherein;

each of said pre-charge devices is a transistor and each of said sensing devices is a latch.

20. The method of Claim 19, wherein;
said retirement payload array is a 192 column, 16-
read word line register file structure employing a
5 dynamic, full swing pull down read mechanism.

21. A retirement payload array comprised of
modified column structures, each of said modified
10 column structures comprising:
a read bit line;
a pre-charge device coupled to said read bit line,
said pre-charge device comprising a transistor;
a sensing device coupled to said read bit line,
15 said sensing device comprising a latch;
at least one memory cell, said memory cell
comprising an output coupled to said read bit line and
an input;
a NOR-Gate comprising a first input, a second
20 input and an output, said NOR-Gate output being coupled
to said input of said at least one memory cell;
a conditional read circuit, said conditional read
circuit comprising:
an inverter, said inverter having an input and an
25 output; and
a NAND-Gate having a first input, a second input,
and an output, said NAND-Gate output being coupled to

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said NOR-Gate first input, said inverter output being coupled to said NAND-Gate second input;

5 a clock signal, said clock signal having a first or "A" phase and a second or "B" phase, said clock signal being coupled to said input of said inverter of said conditional read circuit, said pre-charge devices being pre-charged when said clock signal is in said first or "A" phase;

10 an advance pointer signal, said advance pointer signal having a first or inactive phase and a second or active phase, said second or active phase of said advance pointer signal corresponding to a shift in position of a read pointer, said advance pointer signal being coupled to said first input of said NAND-Gate of
15 said conditional read circuit, wherein;

said conditional read circuit initiates a read of said retirement payload array only when, both:

said clock signal is in said "B" phase; and
said advance pointer signal is in said active
20 phase.

22. The retirement payload array of Claim 21, wherein;

25 said retirement payload array comprises M rows of memory cells and N of said column structures.

23. The retirement payload array of Claim 22,
wherein;

said retirement payload array comprises M read
word lines and N read bit lines, further wherein;

5 each of said N read bit lines is coupled to a
corresponding pre-charge device and a corresponding
sensing device.

10 24. The method of Claim 21, wherein;

said retirement payload array is a 192 column, 16-
read word line register file structure employing a
dynamic, full swing pull down read mechanism.

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